

# **The Building of the Castillo de San Marcos**

## **Standards-Based Activities (4<sup>th</sup>-5<sup>th</sup> grade)**

**NOTE:** This activity set can stand alone or be used as an introduction for a fieldtrip to Castillo de San Marcos National Monument in St. Augustine, Florida. Call (904) 829-3099 for school reservations.

### **Contents:**

- 1) Reading**
- 2) Writing**
- 3) Math**
- 4) Answer Page**

**Designed by Linda A. Chandler  
(Interpretive Specialist, Fort Matanzas National Monument)**

**Created at a Pelotes Island Nature Preserve FCAT Workshop  
Sponsored by Pelotes Island Nature Preserve (JEA & FPL)  
The League of Environmental Educators in Florida (LEEF), and  
the Museum of Science and History (MOSH)  
For more Standards-Based Activities in science and social studies,  
check out <http://pelotes.jea.com>.**

# **The Building of the Castillo de San Marcos Standards-Based Reading Questions**

## **The Stone that Saved St. Augustine**

The Spanish founded St. Augustine in 1565, but it would be another hundred years before they began building the Castillo de San Marcos we see today. The earlier wooden forts did not last long. Some of them burned down; some were washed away by storms; and some just rotted from neglect. However, two events took place around the mid-1600s that made the Spanish realize that it was time to build a stronger fort to defend their town and their colony of La Florida.

The first event was in 1668 when the pirate Robert Searles attacked St. Augustine. Unlike Sir Francis Drake, who had attacked and burned St. Augustine to the ground a hundred years earlier, Searles did not burn the town or destroy the wooden fort. The Spanish feared he might return with more men and turn St. Augustine into a pirate camp to attack Spanish treasure ships. They needed more protection.

The second event was the founding of Charleston by the English in 1670. The English had settled Jamestown, Virginia forty-two years after the Spanish founded St. Augustine followed by the Pilgrim's settlement at Plimouth, Massachusetts in 1620. But these colonies were too far away to be a threat. Even the establishment of Maryland and New York over the next decades did not much affect the Spanish. But that changed in 1670 with the establishment of Charleston in South Carolina. The English were now much too close for comfort.

The Spanish Crown sent money to St. Augustine for the building of a stone fortress. Skilled workmen and masons were recruited in Cuba. These men gathered a force of workers from Cuban convicts as well as nearby Timucua, Guale, and Apalachee Indians to build the fort. In 1672 the work began.

Instead of wood, this new fort was built of coquina, a kind of stone that had been found near the coast on Anastasia Island. This limestone formed over thousands of years from the shells of the tiny coquina clam cemented together through time and nature into a solid, but soft, stone.

Some workers used pickaxes and crowbars to hack the shell rock out of the ground. Others gathered oyster shells from the many Indian shell middens in the area. These shells were burned into lime. When mixed with sand and water, this lime became the mortar used to cement separate coquina blocks together.

Slowly the walls rose. Since no one had ever built a fort out of coquina before, they had no idea how strong it would be. At least they knew it would not burn or get eaten by termites, but how long would a fort made out of seashells hold up under cannon fire? No one knew, so they built the walls 12 feet thick with the walls facing the harbor 19 feet thick!

Only seven years after the new fort was finished, St. Augustine was attacked by James Moore and his British forces from Charleston. He captured the town and set his

cannon up among the houses to fire at the fortress. But a strange thing happened. Instead of shattering, the coquina stone absorbed the shock of the hit! The cannon ball just bounced off or stuck in a few inches! The shell rock worked!

In 1740, the British general, Oglethorpe, bombarded the Castillo with cannon fire for 27 days. The walls held firm. This seashell stone turned out to be an excellent building material after all. What if the Spanish had not discovered coquina stone? The British might have captured St. Augustine. The United States might even be a part of a British Commonwealth like Canada is today. Who could have imagined that a stone could have changed the path of an entire nation?

### **References:** \_

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## **The Building of the Castillo de San Marcos Standards-Based Reading Questions**

1. How could history have been different if the Spanish had never discovered coquina rock? Use details and information from the article to support your answer.

**Read  
Think  
Explain**

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**The Building of the Castillo de San Marcos  
Standards-Based Reading Questions  
(continued)**

2. Based on the information in the article, why was the Castillo built?
- a) To protect the Spanish from the Native Americans.
  - b) To protect the Spanish from the French.
  - c) To protect the Spanish from the English and pirates.
  - d) To protect the Spanish from the Cubans.
3. The article states that “In 1740, the British general, Oglethorpe, bombarded the Castillo with cannon fire for 27 days.” Using context clues, what is the meaning of the word “bombarded”?
- a) Dropped bombs onto the Castillo.
  - b) Shot cannon balls at the Castillo.
  - c) Set fire to the Castillo.
  - d) Set up a blockade around the Castillo.
4. Explain the advantages of a stone fort over a wooden one. Use details and information from the article to support your answer.

**Read  
Think  
Explain**

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## **The Building of the Castillo de San Marcos Standards-Based Writing Questions**

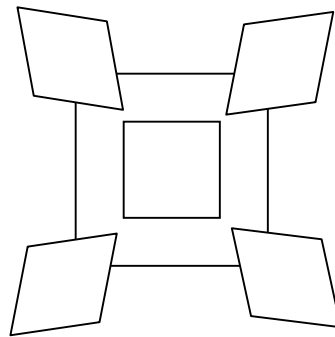
1. In the 1500's and 1600's French, Spanish, and English people established colonies in the New World. Think about what it would be like to move your home across the world. Write to explain how you might prepare for this move.
2. When British soldiers blocked food and supplies coming into St. Augustine, the townspeople had to make their supplies last. Imagine that you were in charge of supply conservation at St. Augustine. Write to explain what you would do to make the supplies last.
3. Native Americans left their home villages to come work on St. Augustine's new fort. Think about your first visit to a new place, like a new school, new home, or a vacation spot. Write a story about your first day in this place.
4. In 1672, the Spanish built a new fort from coquina stone. Think about how people might build such a large structure without cranes or bulldozers. Write a story about a person trying to move a heavy stone without modern machinery.

## The Building of the Castillo de San Marcos Standards-Based Math Questions

1. The Castillo cost 138,375 pesos to build in 1672-1695. If a peso is worth \$4.80 in today's dollars, how much did it cost to build the Castillo in today's money? Round to the nearest dollar.
- a) \$ 28,828
  - b) \$ 66,420
  - c) \$ 132,840
  - d) \$ 664,200

2. The Castillo is made up of what shapes?

- a) Squares and triangles
- b) Diamonds and triangles
- c) Squares and diamonds
- d) Circles and squares



3. The perimeter of the Castillo is 1,509 feet. If the walls are 33 feet high, what is the area of the outside walls in square yards? Hint: 1 square yard = 9 square feet. Show your work.

**THINK**  
**SOLVE**  
**EXPLAIN**

## The Building of the Castillo de San Marcos Standards-Based Math Questions (continued)

4. Complete the chart below for this hypothetical example. Round your answer to the nearest tenth.

## Working to Build the Castillo

| Year | Number of Workers that Year | Number of Blocks Laid that Year | Average Number of Blocks Laid by each Worker |
|------|-----------------------------|---------------------------------|--|
| 1672 | 88                          | 8,008                           |  |
| 1673 | 122                         | 12,383                          |  |
| 1674 | 172                         | 15,584                          |  |
| 1675 | 136                         | 10,608                          |  |
| 1676 | 148                         | 15,644                          |  |

5. Using the hypothetical chart “Working to Build the Castillo,” create a bar graph showing how many blocks of coquina were laid in each year during the first five years of construction. Be sure to title your graph, label the axes, use appropriate and consistent scales, and graph your data accurately.

[illegible]



## **The Building of the Castillo de San Marcos Standards-Based Math Questions ( continued)**

Question 5 continued.

On the line below write a sentence describing your graph.

**THINK**  
**SOLVE**  
**EXPLAIN**

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## **The Building of the Castillo de San Marcos Answers**

### **Reading**

1. Use the rubric for Short Response Reading Questions – 2 points  
[S.S.S.], Level [bloom's taxonomy level 1 or 2]

#### **Example of a Top-Score Response**

If the Spanish did not have coquina, it might have changed the history of our country. The English might have won and captured St. Augustine. This would have made them stronger, and we might today even be a British commonwealth like Canada is now. Coquina rock changed the path of an entire nation.

2. (c) [S.S.S.], Level [bloom's taxonomy level 1 or 2]
3. (b) [S.S.S.], Level [bloom's taxonomy level 1 or 2]
4. Use the rubric for Extended Response Reading Questions – 4 points  
[S.S.S.], Level [bloom's taxonomy level 1 or 2]

#### **Example of a Top-Score Response**

A stone fort has many advantages over a fort made of wood. A wood fort would burn down if it caught fire, but a stone fort would not burn. A big storm or hurricane would wash a wood fort away, but a stone fort would probably stand. Termites could eat a wood fort, but termites cannot eat stone. Wood can rot if it is not taken care of, but stone does not rot and does not take as much care. A fort made out of stone would probably last much longer than a fort made of wood.

### **Writing**

For All – Use the rubric for Florida Writes! – 6 points

1. LA.B.1.2.2, LA.B.2.2.3, LA.B.2.2.6
2. LA.B.1.2.2, LA.B.2.2.3, LA.B.2.2.6
3. LA.B.1.2.2, LA.B.2.2.3, LA.B.2.2.5
4. LA.B.1.2.2, LA.B.2.2.3, LA.B.2.2.5

## Math

1. d) MA.
2. c) MA.
3. Use the rubric for Short Response Math Questions – 2 points MA

### **Example of a Top-Score Response**

Answer is 5533 square yards.

$$\begin{array}{r} 1509 \\ \times 33 \\ \hline 49,797 \text{ sq. feet} \end{array}$$

$$(1 \text{ sq yd.} = 9 \text{ sq. ft.})$$

$$\frac{49,797}{9} = 5533 \text{ sq. yards}$$

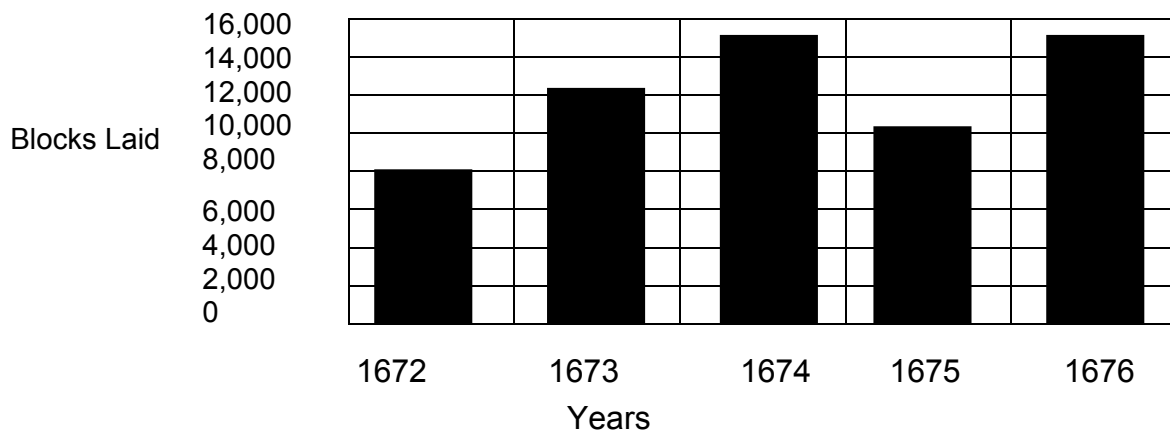
4. Use the rubric for Short Response Math Questions – 2 points MA.1.2.1

| Year | Number of Workers | Number of Blocks | Number of Blocks per Worker |
|------|-------------------|------------------|-----------------------------|
| 1672 | 88                | 8,008            | 91.0                        |
| 1673 | 150               | 12,383           | 101.5                       |
| 1674 | 172               | 15,584           | 90.6                        |
| 1675 | 121               | 10,608           | 78.0                        |
| 1676 | 148               | 15,644           | 105.7                       |

5. Use the rubric for Extended Response Math Questions – 4 points MA.E.1.2.1

### **Example of a Top-Score Response**

Blocks Laid Each Year for the First 5 Years of Castillo Construction



Sentence describing graph--

1674 and 1676 were the highest production years during construction of the Castillo.

Note to Teachers:

In addition, a field trip to the Castillo and St. Augustine combined with classroom discussion and activities may aid the student in completing the following Social Studies Strands and Standards:

### **Social Studies**

Strand-- Time, Continuity, and Change

1. The student understands historical chronology and the historical perspective.
4. The student understands US history to 1880.
5. The student understands US history from 1880 to the present day.
6. The student understands the history of Florida and its people.

Strand-- People, Places, and Environment

2. The student understands the interactions of people and the physical environment.

Strand--Production, Distribution, and Consumption

2. The student understands the characteristics of different economic systems and institutions.

### **Resources:**

Sunshine State Standards can be found at <http://finr.edu/doe//menu/ssss.htm>

Grading Rubrics can be found at <http://www.finr.edu/sas/fcat.htm> under "What Every Teacher Should Know About FCAT"

Additional information about FCAT can be found at <http://www.finr.edu/sas/fcat.htm>